

Eastern Instruments Corp -
Wilmington, NC
Tim Bodemann 919-345-6730 (Formerly of Air Monitor)

VAP3/PA = Velocity Averaging Parallel Plate Pitot for Heavy Particulate Applications

Baseline approx \$150K

\$57,060 to add inner flow probe, gauge, single probe, manual isolation valves, no continuous purge.

\$92,750 to add density compensation with thermocouple and pressure correction.

Advantages:

- 1) Lower cost due to purge air not required
- 2) Proposing 4 pitots per burner, should increase accuracy.
- 3) Having holes on sides of probe, should lead to less particles impacting holes.
- 4) Pitch & Yaw sensitivity, but claim not important, will install perf plate (leading to dp)
- 5) Hungry for job, plan to do whatever it takes to make us happy, including CFD modeling and full scale wind tunnel testing to verify accuracy.
- 6) Should be very repeatable.
- 7) Eastern Instruments has good technical people, including Mr Brandt founder of Brandt Air Flow. More PE's on staff, Air Monitor has mostly Tech's
- 8) Stronger in CFD - 2 in house guys doing Fluent
- 9) Manual quarterly purge may be OK if not using signal for control,
- 10) Purging adds complexity
- 11) 6000 series extruded aluminum, anodized Teflon harder than stainless, erosion, corrosion resistant. Probes will be cheaper, but not as robust.

Disadvantages:

- 1) Several installations did low volume air purge, which is problematic, or periodic manual purge, which could lead to serious pluggage if not done..
- 2) Have never been installed on a burner (Beta test site)
- 3) Aluminum probe, claims can handle 900F, but spec sheet says 700F., cheaper probes.
- 4) Lower accuracy.
- 5) Angle sensitivity requires perforated plate and permanent dp.
- 6)

References: Eastern is trying to get OEM with Burns & Mac, BHA, B&W,

AEP Kammer U1&U3 - Mike Chokel: 304-843-6131 Have had 1 year on Primary and Secondary air into cyclones. Have had no pluggage, manual purged twice. Previous venturi's required 2x weekly blowdown. Installed in turbulent part of duct, plan to move, guessing accuracy at 3%. Initial issues with hardware & pieces, new design more durable. Use quick disconnects to isolate and purge at 80 psi. Order in plenty of time, get manifold parts and pieces, minimize valves and

connections to decrease leakage.

Wheelabrator garbage incinerator plants, Mark Frasca: 954-610-9728 Have them on 9 of 20 plants, they do not plug, only purge during outages. About 8% accuracy out of the box, can trim them to be more accurate. Likes the Eastern probes.

Foster Wheeler - Allan Kukoski 908-730-4000 Visited Eastern facility, happy with VAP's. Have a low pressure purge on the pitots. Have been operating 6 months. No calibration of accuracy.

Has also worked with Air Monitor and likes them fine, they just cost more and definitely need a purge. TVA has experience on some without purge and they plugged. Eastern was more competitive and decided to try.